CLAIMS

1. A glucose level measuring method using glucose dehydrogenase for measuring a glucose level by utilizing a reaction system containing an enzyme and an electron carrier, the method comprising:

using, as the enzyme, glucose dehydrogenase to which cytochrome C is attached; and

using a Ru compound as the electron carrier.

2. The glucose level measuring method according to claim 1, wherein the cytochrome C is derived from a microorganism belonging to a burkholderia genus.

3. The glucose level measuring method according to claim 1, wherein the cytochrome C has a molecular weight of about 43 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

4. The glucose level measuring method according to claim 1, wherein the glucose level measurement comprises providing the reaction system with stimulation, detecting response to the stimulation, and computing the glucose level based on a detected level of the response.

5. The glucose level measuring method according to claim 1, wherein the glucose dehydrogenase includes an α subunit having

a glucose dehydrogenase activity and a molecular weight of about 60 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

6. The glucose level measuring method according to claim 1, wherein the glucose dehydrogenase includes a γ subunit having a molecular weight of about 14 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

7. The glucose level measuring method according to claim 1, wherein the Ru compound is a complex represented by a chemical formula as follows:

$$[Ru(NH_3)_5X]^{n+}$$

(where X represents NH_3, halogen ion, CN, pyridine, nicotinamide or H_2O, and n+ represents a valency of the Ru complex, which is determined by the kind of X).

8. A glucose level measuring method using glucose dehydrogenase for measuring glucose level by utilizing a reaction system containing an enzyme and an electron carrier, the method comprising:

using, as the enzyme, glucose dehydrogenase derived from a microorganism belonging to a burkholderia genus; and

using a Ru compound as the electron carrier.

9. The glucose level measuring method according to claim 8, wherein the glucose level measurement comprises providing the

reaction system with stimulation, detecting response to the stimulation, and computing the glucose level based on a detected level of the response.

10. The glucose level measuring method according to claim 8, wherein the glucose dehydrogenase includes an α subunit having a glucose dehydrogenase activity and a molecular weight of about 60 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

11. The glucose level measuring method according to claim 8, wherein the glucose dehydrogenase includes a γ subunit having a molecular weight of about 14 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

12. The glucose level measuring method according to claim 8, wherein the Ru compound is a complex represented by a chemical formula as follows:

$$[Ru(NH_3)_5X]^{n+}$$

(where X represents NH_3, halogen ion, CN, pyridine, nicotinamide or H_2O, and n+ represents a valency of the Ru complex, which is determined by the kind of X).

13. A glucose sensor comprising: a first and a second electrodes; and a reagent layer containing an enzyme and an electron carrier; the reagent layer being supplied with glucose solution to establish a reaction system, the reaction system being

stimulated by using the first and the second electrodes,

wherein the enzyme comprises glucose dehydrogenase to which cytochrome C is attached; and

wherein the electron carrier comprises a Ru compound.

14. The glucose sensor according to claim 13, wherein the cytochrome C is derived from a microorganism belonging to a burkholderia genus.

15. The glucose sensor according to claim 13, wherein the cytochrome C has a molecular weight of about 43 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

16. The glucose sensor according to claim 13, wherein the glucose dehydrogenase includes an α subunit having a glucose dehydrogenase activity and a molecular weight of about 60 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

17. The glucose sensor according to claim 13, wherein the glucose dehydrogenase includes a γ subunit having a molecular weight of about 14 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

18. The glucose sensor according to claim 13, wherein the Ru compound is a complex represented by a chemical formula as

follows:

$$[Ru(NH_3)_5X]^{n+}$$

(wherein X represents NH_3, halogen ion, CN, pyridine, nicotinamide or H_2O, and n+ represents a valency of the Ru complex, which is determined by the kind of X).

19. The glucose sensor according to claim 13, further comprising liquid retaining space in which the reagent layer is provided and which serves to retain sample liquid,

wherein the reagent layer comprises a solid layer, and wherein the oxidoreductase and the electron carrier at least partially dissolve in the sample liquid when the sample liquid is retained in the liquid retaining space.

20. The glucose sensor according to claim 19, wherein the sample retaining space has a volume of 0.1 to 0.5 μL.

21. The glucose sensor according to claim 19, wherein the enzyme is contained in the reagent layer in an amount corresponding to a glucose dehydrogenase activity of 1.0 to 10.0 U.

22. The glucose sensor according to claim 21, wherein the electron carrier is contained in the reagent layer so that the electron carrier has a concentration of 1.0 to 5.0 wt% when the liquid retaining space is filled with the sample liquid.

23. The glucose sensor according to claim 19, wherein the liquid

retaining space is constructed to move the sample liquid by capillary action.

24. A glucose sensor comprising: a first and a second electrodes; and a reagent layer containing an enzyme and an electron carrier; the reagent layer being supplied with glucose solution to establish a reaction system, the reaction system being stimulated by using the first and the second electrodes,

wherein the enzyme comprises glucose dehydrogenase derived from a microorganism belonging to a burkholderia genus; and

wherein the electron carrier comprises a Ru compound.

25. The glucose sensor according to claim 24, wherein the glucose dehydrogenase includes an α subunit having a glucose dehydrogenase activity and a molecular weight of about 60 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

26. The glucose sensor according to claim 24, wherein the glucose dehydrogenase includes a γ subunit having a molecular weight of about 14 kDa in SDS-polyacrylamide gel electrophoresis under a reduced condition.

27. The glucose sensor according to claim 24, wherein the Ru compound is a complex represented by a chemical formula as follows:

$$[Ru(NH_3)_5X]^{n+}$$

(where X represents NH_3, halogen ion, CN, pyridine, nicotinamide or H_2O, and n+ represents a valency of the Ru complex, which is determined by the kind of X).

28. The glucose sensor according to claim 24, further comprising liquid retaining space in which the reagent layer is provided and sample liquid is retained,

wherein the reagent layer comprises a solid layer, and wherein the oxidoreductase and the electron carrier dissolve at least partially in the sample liquid when the sample liquid is retained in the liquid retaining space.

29. The glucose sensor according to claim 28, wherein the sample retaining space has a volume of 0.1 to 0.5 μL.

30. The glucose sensor according to claim 28, wherein the enzyme is contained in the reagent layer in an amount corresponding to a glucose dehydrogenase activity of 1.0 to 10.0 U.

31. The glucose sensor according to claim 30, wherein the electron carrier is contained in the reagent layer so that the electron carrier has a concentration of 1.0 to 5.0 wt% when the liquid retaining space is filled with the sample liquid.

32. The glucose sensor according to claim 24, wherein the liquid retaining space is constructed to move the sample liquid by capillary action.